DOCUMENT RESUME

ED 161 371 HE 010 602

AUTHOR Hall, Toni
TITLE Integrating Postsecondary Program Planning and Employment Demand. AIR Forum Paper 1978.
PUB DATE May 78
NOTE 18p.; Paper presented at the annual Association for Institutional Research Forum (18th, Houston, Texas, May 21-25, 1978)

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS Community Colleges; *Data Analysis; Data Collection; Data Processing; Educational Demand; Educational Planning; Educational Supply; *Employment Opportunities; Information Dissemination; Information Processing; *Information Systems; *Manpower Needs; *Postsecondary Education; *State Programs; Statewide Planning
IDENTIFIERS *Education and Work; Texas; Texas 1202 Commission; Tex SIS Followup Services

ABSTRACT

A major state-coordinated program in Texas is helping education decision makers and the general public who need information about inputs, activities and cost, and also about the results and impacts of educational programs. Educators have encountered two major problems in obtaining information for effective planning and management: the lack of reliable data with which to make decisions and the absence of systematic data analysis that translates raw data into usable information. The program now operational in Texas includes two major components to address these problems: (1) the Texas Student Follow-Up Information System (TEX-SIS) which provides postsecondary supply data to assist in the development, operation, and evaluation of community college programs; and (2) the primary work of the Texas 1202 Commission, a project to produce educational supply/occupational demand information for education decision-makers, students and counselors, and the general public. Dissemination materials and carefully identified target populations make up the components for distribution of the Tex-SIS follow-up data and the supply/demand information of the 1202 Commission. A list of resource materials is provided. (Author/JMD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED161371

THE ASSOCIATION FOR INSTITUTIONAL RESEARCH

This paper is part of the ERIC Collection of 1978 Association for Institutional Research Forum Papers. All papers in the Collection were recommended for inclusion by the AIR Forum Publications Review Committee.

Robert H. Fenske
Arizona State University
(Editor, AIR Forum Publications)

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

AIR

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM."

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

HE 010602

Integrating Postsecondary Program Planning and Employment Demand

Toni Hall
Chief Consultant
Vocational Planning and Evaluation
Texas Education Agency
201 East 11th Street
Austin, Texas 78701
(512) 475-4641

Abstract

Information on education inputs and outcomes is necessary for sound planning and management. Educators encounter two major problems in assessing educational inputs and outcomes: the lack of reliable data with which to make decisions and the absence of easily understood data analysis. Two major state-coordinated projects in Texas are helping to solve these problems: (1) The Texas Student Follow-Up Information System (Tex-SIS)--a comprehensive post-secondary student follow-up management information system, and (2) the primary work of the Texas 1202 Commission--a project to produce educational supply/occupational demand information for education decision makers for students and counselors and the general public.

Education decision makers recognize that for planning and management to be effective, it must not only be based on information about inputs, activities and costs, but must also utilize information about the results and impacts of educational programs.[1] The need for education decision makers and the general public to use up-to-date information for educational planning and career choices is well know. Major problems encountered in making such information available are: (1) the lack of reliable data upon which to make such decisions and (2) the absence of systematic data analysis which translates raw data into usable information for education decision makers and the general public.

One such reliable data collection and data analysis effort is now operational in Texas. The Texas program includes two major components: (1) a vehicle which provides accurate postsecondary supply data to assist in the development, operation, and evaluation of community college programs, and (2) a vehicle which provides for analysis of educational supply data and occupational demand information.

This paper will describe the two major components of these Texas programs. A brief description is furnished of the Texas Student Follow-Up Information System (Tex-SIS) and the work of the Texas 1202 Commission--Office of Post-Secondary Educational Planning. In addition, a description of the dissemination model which results from the operation of both Tex-SIS and the 1202 Commission is included. Resource materials have also been referenced for those who wish to obtain information on the topics addressed in this paper.

The characteristics of Tex-SIS listed below provide a general overview of the function and scope of the system. Tex-SIS:

1. identifies diverse educational goals of students and the extent to which these students perceive their goals to have been satisfied.
2. collects data from a variety of occupational/technical and university transfer/academic populations.
3. provides a mechanism for evaluation of the follow-up system.
4. builds around the concept of an educational management information system.
5. includes procedures for "cycling" follow-up studies.
6. provides guidelines for utilization of representative sampling techniques and measurement of non-response bias.
7. provides follow-up cost data and guidelines for computing further cost data on an individual college basis.
8. provides pre-tested procedures and instruments.
9. provides a decentralized capability, both in responsibility and implementation.[2]

In September of 1976, Tex-SIS began its first year of statewide implementation. Tex-SIS will soon enter its third year of operation. During the past two years, the Texas Education Agency has funded a project to provide central processing services to the Texas public community colleges that wish to utilize any of the Tex-SIS questionnaires. These central processing services are charged with the responsibility for (1) printing, upon request, Tex-SIS questionnaires for Texas colleges, (2) processing Tex-SIS questionnaires after the research surveys have been conducted at the college, and (3) producing statewide Tex-SIS information

for a comparison with local information.

Each Texas community college has a Tex-SIS follow-up system liaison person who coordinates and promotes the use of Tex-SIS studies on that campus. Also a Tex-SIS User Committee has been established to guide the direction of the follow-up system and to serve in an advisory capacity to the Tex-SIS Support Services. Each community college person on the User Committee represents several colleges and serves as a communication link to each of these institutions.

As a result of the implementation of Tex-SIS, Texas community colleges now have expanded opportunities to learn more about the quality of their instructional programs and college services. Reliable and current data on community college students are available in the following areas:

- student's education goals
- student's future enrollment plans
- reasons students withdraw from courses
- reasons students withdraw from college
- student's rating of quality of instruction, instructor interest, content of courses, counseling, instructional media, student activities, library services
- transfer problems
- employment status
- salary information
- suggestions for improving courses, etc.

Information can also be obtained from employers of vocational/technical graduates about their rating of the education received by the employee in

such areas as mathematical skills, technical knowledge, organizational ability, communication skills, personal appearance, punctuality, etc.

Community colleges throughout the state are finding many uses for Tex-SIS data as they become more familiar with the results of the studies. The data are being used in a variety of ways at both the state and local levels, including:

- community public relations campaigns
- career counseling with students
- improvement of instructional programs
- vocational and veterans reporting
- liaison with advisory groups
- development of curricula
- course scheduling

In addition information is specifically available on the employment status of students in the following areas: (1) graduates and students who do not return from one semester, (2) students' job titles once employed, and (3) availability of jobs by program completers. All of these areas are currently being linked with the supply/demand analysis work of the Texas 1202 Commission--the topic of the second section of this paper.

The Tex-SIS system is continuing to be successfully used throughout Texas colleges. Many colleges now have three consecutive years of follow-up data from which to make reliable programmatic decisions. There becomes increased opportunity for longitudinal studies and data analysis on both the state and local level. Consideration is being made to expand Tex-SIS follow-up opportunities to the Texas four-year college and university systems. A survey is being conducted to gain input by the university

community to determine a need for such a follow-up system.

Texas 1202 Commission--Primary Objective

In 1976 the Coordinating Board, Texas College and University System, was established as the State Comprehensive Post-Secondary Educational Planning Commission (1202 Commission). The 1202 Commission identified one of its major objectives as the analysis of education supply data as it relates to occupational demand in Texas. The supply/demand system is designed to deliver job outlook information for students to make better career decisions. Such analysis has now been implemented annually for two consecutive years in Texas with the help of Texas post-secondary educational institutions and other state agencies.

The 1202 Commission intends to continue to provide information on the relationship between student output in post-secondary education in Texas and career opportunities in the job market. A specific goal of the Commission is to identify those vocational and academic programs which are overproducing, underproducing and/or in balance relative to occupational openings. With this type of knowledge available to counselors, students, parents, and educational administrators, better informed decisions can be made regarding educational planning and a student's career choices.[3]

In order to perform the data analysis required to achieve the 1202 Commission's objective, a comprehensive data collection effort must take place each year. However, with statewide data collection systems such as the Tex-SIS follow-up system in place, the scope of the work required to collect needed data has been significantly reduced. The

data elements required to make the educational supply/occupational demand comparisons are as follows:

1. Experiences and trends in locating employment for graduates of their institutions as determined by institutional placement officials.
2. Empirical information regarding the types of occupations open to graduates of each program.
3. A forecast of the annual output of graduates from post-secondary programs.
4. The percentage of students who complete post-secondary educational programs that actually enter the job market.
5. A forecast of the number of students (not classified as graduates) who will leave school and enter the job market after one or more years of college.
6. A forecast of the number of high school graduates (or equivalent) who will enter the job market after completion of some vocational training beyond high school, but who are below the one year college level.
7. A forecast of the annual number of job openings, by occupation, in Texas.
8. A forecast of the effect of net in-migration of workers into Texas on the job openings available to persons who complete post-secondary educational training in the state.[4]

Various means of data collection and data analysis procedures are used to acquire the extensive data required to accomplish desired supply/demand analysis. In addition to the above data elements used in the educational

supply/demand analyses, the Tex-SIS follow-up system is generating actual job titles of community college graduates. Survey forms requesting evaluation of short-term employment opportunities are sent directly to the colleges and universities (public and private) and such organizations as the Proprietary School Association. Similar information is received from the U.S. Department of Labor and U.S. Office of Education. Forecasting which utilizes a time delay model, regression analysis, and number of degrees awarded are used to determine output information.

As mentioned earlier, Tex-SIS follow-up information is used to derive percentages of annual output available for the labor market. Analysis of non-returning student percentages are also computed from Tex-SIS data. Additional sources of output information (e.g., CETA programs, job corps centers, apprenticeship programs) are utilized. Data from the Texas Employment Commission and information on net in-migration is used to determine the number of job openings.

The Texas post-secondary supply/demand approach results in the presentation of a report which displays employment opportunities by program and projections of post-secondary supply as well as occupational openings.

In the first section of the supply/demand report, educational programs (e.g. doctor of medicine, economics, dental hygiene) are listed by five educational attainment levels.

Professional degree
Graduate degree
Baccalaureate degree
Two- or three-year programs
Less than two-year programs

Short-term employment opportunities are listed by program and related occupations through the use of the rating terms "excellent," "very good," "good," "competitive," or "keenly competitive." These terms reflect a numerical analysis based on the difference between demand (D) for the workers in a giver program/occupational match and the supply (S) of graduates of the program. The following chart further explains the relationship between terms used and numerical ratings determined through the comparison of supply and demand.

Supply/Demand Comparisons

"Excellent" job opportunity exists if $\frac{D-S}{S}$ is + 40% or more

"Very Good" job opportunity exists if $\frac{D-S}{S}$ = +16% to 39%

"Good" job opportunity exists if $\frac{D-S}{S}$ = +15% to -15%

"Competitive" job opportunity exists if $\frac{D-S}{S}$ = -16% to -39%

"Keenly Competitive" job opportunity exists if $\frac{D-S}{S}$ = -40% and below[5]

Statewide employment opportunities are included for all occupations listed. Regional employment opportunities are available only by vocational program area. The 1202 Commission report projects supply/demand information for a five-year period. (The latest five-year analysis is for 1977-1983). The supply/demand projections include occupational openings and program output by (1) graduate degree, (2) baccalaureate degree, (3) one to three years of college, (4) high school plus additional vocational training below the college level. For the five-year projections, post-

secondary educational supply is defined as the number of persons entering the Texas job market with a high school education plus some vocational training beyond high school, or at least one year of college.

Occupational demand is defined as the number of openings, by occupation, in the Texas job market available to those persons who meet the post-secondary educational supply criteria.[6] Demand data is obtained directly from the Texas Employment Commission and analyzed according to jobs available by educational attainment level. Average annual output by program of study (by educational attainment level) is projected for a five-year period. Program output is reduced by the number of those persons not expected to enter the job market. An average annual number of job openings is also projected for a five-year period according to the appropriate educational attainment level.

Further matching of occupations to programs and the calculation of the number of job openings in each occupation results in a complete picture of the available 'market-ready' supply for each program. Available job openings for each occupation are depicted at each of the educational attainment levels.

Dissemination--A Statewide Effort

Dissemination materials and carefully identified target populations make up the components for distribution of Tex-SIS follow-up data and the supply/demand information of the 1202 Commission.

The Tex-SIS system includes numerous related documents prepared for local and statewide dissemination. Initially, local Tex-SIS surveys are processed and computer printouts are made available through the Tex-SIS

survey. These composite formats reflect the student's major program area displaying Tex-SIS questions and the number and percentage of student responses by question by local college. Multiple copies of printouts are mailed to the colleges. The college liaison staff member distributes the printout information according to the particular interest level and function of college personnel (e.g., summary formats to presidents, specific program information to division chairpersons, career choice for students, etc.)

As soon as all college surveys are received for a particular Tex-SIS questionnaire, statewide data is generated for that particular Tex-SIS questionnaire. Tex-SIS questionnaire monographs are prepared to reflect statewide data by occupational/technical majors, by university transfer majors, by composite/all majors. These monographs are widely disseminated to provide local colleges and other users an opportunity to compare their local data with statewide summary data.

Two other Tex-SIS data dissemination efforts provide additional Tex-SIS data. A monthly publication series of Tex-SIS "One Liners," provides sample Tex-SIS data in a simple single sheet format. These are disseminated to colleges and specific individuals across the country using Tex-SIS data. Also, a publication series of Tex-SIS program booklets which display selected Tex-SIS program data (e.g., Associate Degree Nursing, Drafting, Diesel Mechanics, etc.) compare their local program data with the statewide data provided in the program booklets.

The results of the 1202 Commission's effort are widely disseminated in the form of three documents. The first of these documents is a Technical Report which describes the procedures used to produce the actual

supply/demand report. A full Report of Post-Secondary Educational Supply and Occupational Demand in Texas includes complete table and chart displays of the 1202 Commission's annual report. This report is widely disseminated to education decision makers. A Summary Document of the educational supply/demand conditions for post-secondary education is prepared and reflects short-term employment opportunities expected to be competitive to keenly competitive (displayed in red); generally good--a balance between supply and demand (displayed in yellow); very good to excellent (displayed in green). The Summary report is widely disseminated to students and the general public involved in making career choices that are educationally related. A slide/tape presentation designed for use by counselors, students, and parent groups is being designed to explain the supply/demand data and promote the use of the data for career choice.

Tex-SIS and 1202 Commission dissemination efforts include the development and presentation of articles and speeches concerning data results for public media, educational journals, college related publications, professional organizations and other forums for dissemination.

Increased data utilization of both the Tex-SIS follow-up system and 1202 Commission program will strengthen the impact of these local and state data collection projects. The continued use of the Tex-SIS system and the 1202 Commission data can improve efforts in program planning and evaluation in institutions of education and continue to inform and assist individuals in making informed decisions.

Footnotes

1. Micek, Sidney S. "Top Priority Higher Education Outcome Measures" Boulder, Colorado: National Center for Higher Education Management Systems, July 1976.

2. Reed, Jim. S1S: Student Information System Activities Manual, Student Follow-up, Fort Worth, Texas: Tarrant County Junior College, August 1976. pp. ix-xii.

3. Cobb, John H. et al. Post-Secondary Educational Supply and Occupational Demand in Texas for the Period of 1977-1983, Austin, Texas: Coordinating Board: Texas College and University System, 1978, p. 1.

4. Cobb, John H. et al. Technical Report, Post-Secondary Educational Supply and Occupational Demand in Texas for the Period 1977-1983, Austin, Texas: Coordinating Board: Texas College and University System, 1978, pp. 1-2.

5. Cobb, John H. et al., Ibid., p. 8.

6. Cobb, John H. et al., Ibid., p. 11.

Resource Materials

The following resource materials serve as references for additional information on the contents of the paper entitled "Interpreting Postsecondary Program Planning and Employment Demand" by Toni Hall, Texas Education Agency, Austin, Texas as presented to the Association of Institutional Research Forum, May 24, 1978, Houston, Texas. Additional information is available from the authors listed.

Reed, Jim F. Student Information System - Activities Manual. Fort Worth, Texas: Tarrant County Junior College, August, 1976.

Reed, Jim F. Student Information System - Procedures Manual. Fort Worth, Texas: Tarrant County Junior College, August, 1976.

Reed, Jim F. Student Information System - Data Processing Manual. Fort Worth, Texas: Tarrant County Junior College, August, 1976.

Patterson, Larry. Employer Follow-Up, Tex-SIS Subcontractor Report. Amarillo, Texas: Amarillo College, August, 1976.

Representative Sampling, Tex-SIS Subcontractor Report. Texas City: College of the Mainland, August, 1976.

Hood, Duane. Educational Goals and Student Flow, Tex-SIS Subcontractor Report. Snyder, Texas: Western Texas College, August, 1976.

Baugh, Ronald. Follow-up Costs, Tex-SIS Subcontractor Report. Corsicana, Texas: Navarro College, August, 1976.

Carrier, Jerry E. Exit Interview, Tex-SIS Subcontractor Report. Alvin, Texas: Alvin Community College, August, 1976.

Lewis, Ray. Graduate Follow-Up, Tex-SIS Subcontractor Report. San Antonio, Texas: San Antonio College, August, 1976.

Fite, Ron. Follow-up Methodology, Tex-SIS Subcontractor Report. Corpus Christi, Texas: Del Mar College, August, 1976.

Hall, Toni and Reed, Jim. Student's Educational Intent - Data Summary - Fall, 1976, Tex-SIS Monograph I. Austin, Texas: Texas Education Agency, July, 1977.

Hall, Toni and Reed, Jim. Course Withdrawal - Data Summary - Fall, 1976, Tex-SIS Monograph II. Austin, Texas: Texas Education Agency, July, 1977.

Resource Materials (Cont.)

Hall, Toni and Reed, Jim. College Withdrawal - Data Summary - Fall 1976, Tex-SIS Monograph III. Austin, Texas: Texas Education Agency, August, 1977.

Hall, Toni and Reed, Jim. State Follow-up Reporting (State Analysis) - Data Summary - Fall, 1976, Tex-SIS Monograph IV. Austin, Texas: Texas Education Agency, August, 1977.

Hall, Toni and Reed, Jim. State Follow-up Reporting - Data Summary 1975-76, Tex-SIS Monograph V. Austin, Texas: Texas Education Agency, July, 1977.

Hall, Toni and Reed, Jim. First Year Graduate - Data Summary 1975-76 Graduates, Tex-SIS Monograph VI. Austin, Texas: Texas Education Agency, August, 1977.

Hall, Toni and Reed, Jim. Nonreturning Students - Data Summary - 1975-76, Tex-SIS Monograph VII. Austin, Texas: Texas Education Agency, November, 1977.

Hall, Toni and Reed, Jim. Employer Follow-up Data Summary - 1976-77, Tex-SIS Monograph VIII. Austin, Texas: Texas Education Agency, November, 1978.

Cobb, John H. et. al. Postsecondary Educational Supply and Occupational Demand in Texas for the Period of 1977-1983 - A Report by the State 1202 Commission. Austin, Texas: Coordinating Board, Texas College and University System, March, 1978.

Cobb, John H. et al. Technical Report Postsecondary Educational Supply and Occupational Demand in Texas for the Period 1977-1983. Austin, Texas: Coordinating Board, Texas College and University System, March, 1978.

Cobb, John H. et al. A Summary of Educational Supply-Demand Conditions for Postsecondary Education in Texas - Series II. Austin, Texas: Coordinating Board, Texas College and University System, March, 1978.